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EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1782	

NOTIFICATION DATE	DELIVERY MODE
04/28/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/540,474	MATSUI ET AL.	
	Examiner	Art Unit	
	JENNIFER STEELE	1782	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-8,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 1, 4, 6, 7, 8 and 11 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kajita (JP-2003-119625 – machine translation) as further evidenced by J. Karger-Kocsis, Institute for Composite Materials "Polypropylene An A-Z reference". Claims 1 and 7 as amended are described in the table below.

Claim 1	Claim 7
a. heat fusible conjugate fiber produced by	heat fusible conjugate fibers
b.	comprising two components having different melting points
c.	formed by heating fusible conjugate fibers and fusing the intersections of the fibers and
d.	wherein the bulky nonwoven fabric has having a specific volume of 95 cm^3/g or more

e.	a strength per basis weight of 0.18(N/25 mm)/(g/m^2) or higher,
f.	a bulk softness per unit thickness of 0.14 N/mm or less
g. High speed melt spinning and after the spinning	by high-speed melt spinning, after spinning
h. a crimp treatment	a crimp treatment
i. But no drawing	But no drawing
j. which comprises a first resin component having an orientation index of 40% or higher	comprise a first resin component having an orientation index of 40% or higher
k. a second resin component having a lower melting or softening point than the melting point of the first resin component and an orientation index of 25% or lower,	a second resin component having a lower melting or softening point than the melting point of the first resin component and an orientation index of 25% or lower,
l. the second resin component being present on at least part of the surface of the fiber in a lengthwise continuous configuration,	the second resin component being present on at least part of the surface of the firer in a lengthwise continuous configuration,
m. wherein said fiber has negative heat shrinkage values at a temperature higher than the melting point or softening point of the second resin component by 10°C,	wherein said fibers have negative heat shrinkage values at a temperature higher than the melting point or softening pint of the second resin component by 10°C,
n. increases in length upon heating	increase in length upon heating,
o. wherein the heat fusible conjugate fibers are staple fibers of 30-70 mm in length	wherein the heat fusible conjugate fibers are staple fibers of 30 to 70 mm in length.

Kajita teaches a fiber for a nonwoven fabric in the form of an undrawn state of a sheath/core type conjugate fiber obtained by melt spinning. Kajita teaches a lower melting polypropylene based copolymer as the sheath and a higher melting isotactic polypropylene as the core. Kajita teaches the conjugate fibers are crimped and cut into

staple fibers (ABST). Kajita teaches a conjugate fiber with two different melting points. Kajita teaches the nonwoven fabric is made by welding the fiber via an exhaust air through process [0023]. The term welding is equated with heat fusible. Kajita teaches a heat fusible fiber.

Kajita teaches the fiber is produced comprising the steps of obtaining undrawn yarns by melt spinning and crimping the undrawn yarns and cutting the crimped undrawn yarns into staple fibers. Kajita teaches a melt spinning process can be high speed or low speed but also teaches trouble with thread breakage occurs if the spinning speed is high and it is necessary to make melt spinning speed a low speed. Kajita differs and does not teach the range of high or low speed. The speed of the melt spinning is a process limitation and it should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

Kajita teaches substantially the same process as claimed.

Kajita teaches the cut staple fibers have a length of 51 mm which is in the claimed range of 30-70 mm.

Kajita teaches a sheath and a core and a sheath would be present on at least part of the surface of the fiber.

Kajita differs from the current application and does not teach the property of orientation index of the sheath and core polymers. Orientation index is defined by Applicant to be the ratio of the drawn fiber birefringence over the intrinsic birefringence. The birefringence of a drawn fiber is dependent on the melt spin processing parameters, evidenced by the reference "Polypropylene, An A-Z Reference". Birefringence is dependent on the spinning take up velocity as found on page 431 which shows birefringence as a function of take-up velocity of a melt spun filaments. As the reference teaches, optimizing the spinning take up velocity would change the orientation index of the resultant fiber. Therefore birefringence and the orientation index is a result-effective variable of the spinning process. As Applicant teaches an undrawn fiber, the claimed orientation index would result from this process or could be optimized to obtain the desired property. While the intrinsic birefringence of the resins employed in the invention could be compared to prior art resins, the property of orientation depends on the process parameters and Examiner will presume that the orientation index as claimed would be a result of employing the resins and process of Kajita.

Kajita differs and does not teach the fiber has the property of increasing in length upon heating. Kajita teaches the fiber for a nonwoven which has bulkiness by thermofusing which implies the fiber expands with heat to produce a bulky and lofty web.

Kajita teaches and measures the fiber shrinkage by method JIS L 1015 [0039]. The shrinkage is less than 1.5% and 0.5% for comparative example 1. Kajita is teaching very low shrinkage measured by JIS L 1015. Applicant claims a negative heat shrinkage which is measured with a thermomechanical analyzer TMA-50 (page 5, lines 21-23).

As claim 7 includes the additional limitations of specific volume, strength per basis weight and bulk softness per unit thickness. **Kajita differs and does not teach the properties of specific volume, strength per basis weight and bulk softness per unit thickness.**

Kajita teaches substantially the same process and materials as claimed and therefore it is presumed that the claimed properties are inherent to Kajita or it would have been obvious to optimize the materials and process to obtain the claimed properties. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

As to claim 4, Kajita teaches a sheath-core configuration where the first resin or core resin has the higher melting point and the second resin or lower melting point resin is the sheath.

As to claim 8, Kajita teaches the fibers go through a carding machine [0033].

As to claim 11, Kajita teaches a process where the conjugate fibers are melt spun, mechanically crimped [0032]-[0033] but no heating or drawing is performed [0026].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claim 5 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita (JP-2003-119625) in view of J. Karger-Kocsis, Institute for Composite Materials "Polypropylene An A-Z reference" and in further view of Horiuchi et al (US 5,800,230)

As to claim 5, Kajita differs and does not teach the second resin component, or sheath, comprises high-density polyethylene.

Horiuchi teaches a bulky nonwoven fabric and a method of manufacturing the filament nonwoven fabric which is made of conjugated filaments (ABST).

Horiuchi teaches a process of making a conjugate filament including the steps of spinning the conjugated filaments by a spun bond method, blowing the webs by a high-speed flow against a scavenging device and removing the blown high-speed flow from the device, carrying out a preliminary bulkiness treatment; adding crimps and bulkiness (col. 2, lines 35-45). The bulkiness treatment is a heat treatment that is a hot air through treatment at a temperature between the melting point of the low melting point polymer and that of the high melting point polymer (col. 2, lines 60-64).

Horiuchi teaches high speed melt spinning followed by a heat treatment which produces a crimped fiber. Horiuchi teaches spinning the filaments and quenching in a high-speed flux sucking device. Horiuchi teaches the spun fibers are drawn by the high-speed flux drawing device.

In example 1, Horiuchi teaches a low melting point polymer of high density polyethylene and a high melting point polymer of polypropylene spun through a conjugated spinning device, where the temperature was 260°C for the sheath section and 320°C for the core section. Horiuchi teaches a spun filament was pulled by high-speed flux type sucking and removal device at 3000m/min and was blown against the net conveyor along with air flux. The blown air flux was sucked and removed by the high-speed flux sucking and removal device at the bottom of the net conveyor. The blown air flux is called a preliminary bulking treatment and the air can be at a higher temperature. Then the floating web heat through air treatment was carried out at

144°C. As the current application teaches high speed melt spun filaments have take up speed of 2000m/min, Horiuchi teaches a speed that is equated with high speed of claim 1.

Horiuchi teaches a first resin and a second resin wherein one has a higher melting point and the other has a lower melting point and the difference in melting points is at least 15°C (ABST).

As to claim 5, Horiuchi teaches the first resin comprises polypropylene and a second resin of high-density polyethylene (col. 8, lines 41-45).

Horiuchi presents a finding that one of ordinary skill in the art could have substituted a high density polyethylene as the sheath motivated to produce a bulky fiber and a bulky nonwoven.

As to claim 10, Kajita differs and does not teach the spinning speed. Horiuchi teaches a take up speed of 3000m/min in example 1. Horiuchi presents a finding that one of ordinary skill in the art could have employed the technique of high speed melt spinning to produce a heat fusible conjugate fiber motivated to produce a bulky fiber and a bulky nonwoven.

Response to Arguments

3. Applicant's arguments, with respect to claims 1 and 7 have been fully considered and are persuasive. The 35 USC 103 rejection with respect to Horiuchi, J. Karger-Kocsis and Martin of claims 1, 4-8 and 10-11 has been withdrawn. Applicant's

arguments with respect to claim 1, 4-8 and 10-11 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's arguments that Horiuchi teaches the fibers are drawn by the high-speed flux drawing device are persuasive. New ground of rejection over Kajita is presented which teaches a heat fusible conjugate fiber that is not drawn and mechanically crimped versus a crimp treatment that uses heat as taught in Horiuchi. While Kajita teaches the shrinkage is low at 0.5% and does not teach a negative shrinkage, the methods of measurement of shrinkage of Kajita and the Applicant are not equivalent and therefore it is presumed the negative heat shrinkage could be obtained in the fiber of Kajita if tested by the method of Applicant.

5. The previous rejection over claim 11 over Horiuchi, J. Karger-Kocsis and Martin was not correct as Horiuchi teaches the crimp treatment is a heat treatment. As a result this Office Action is being made Non-Final.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1782

4/13/2010

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1782